ORIGINAL RESEARCH

DEPRESSION AND ASSOCIATED FACTORS AMONG RETROVIRAL-POSITIVE PATIENTS RECEIVING CARE IN A TERTIARY HOSPITAL IN SOUTHERN NIGERIA

https://doi.org/10.71921/ajrmhs.vol3no2.61

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Abstract

Introduction: Human Immunodeficiency Virus (HIV) is a global health concern with repercussions beyond its physical impact, extending to mental well-being. Approximately 280 million people wi th HIV experience depression, with 3.63 million residing in sub-Saharan Africa. This research investigated the relationship between HIV infection and depression among patients receiving care at the antiretroviral therapy (ART) clinic of the Rivers State University Teaching Hospital.

Methods: Conducted as a cross-sectional hospital-based study, systematic sampling was employed to recruit 404 confirmed HIV-positive participants receiving ART in the last six months, after informed consent was obtained. The PHQ-9 questionnaire was administered to assess depression, and data analysis utilized SPSS version 25. Pearson's Chi-square tested associations at a significance level of $p<0.05$ with a 95% confidence interval.

Results: Participants, averaging 41.8 ± 10.1 years, were mostly females (n=267, 66.1%). The Tenofovir/Lamivudine/Dolutegravir combination was the predominant regimen received by the participants (n=374, 92.6%), with 80.7% (n=326) being on HAART for 0-9 years, and 89.9% (n=363) having comorbidities. Depression prevalence was 63.9% (n=258), with the majority having mild depression (n=252, 62.4%), and most participants had no social support (n=399, 98.8%). A significant association existed between depression and a family history of depression (p=0.015).

Conclusion: This study reveals a notable occurrence of depression among the participants, predominantly mild, with a significant link to a family history of depression. Implementing a comprehensive psychotherapy intervention at our study centre could enhance patient care, providing a centralized solution for addressing these mental health concerns early and promptly.

KEYWORDS: Depression, Associated Factors, Retroviral-Positive Patients, Tertiary Hospital

Cite as: ***Uzosike TC, Luke A, Dan-Jumbo A. Depression and associated factors among retroviral-positive patients receiving care in a Tertiary Hospital in Southern Nigeria. AJRMHS. 2025;3(2):*** **6-15**

INTRODUCTION

Human Immunodeficiency Virus (HIV) and Acquired Immunodeficiency Syndrome (AIDS) are health challenges all over the world, infecting and affecting individuals and families, and requiring apt intervention and collaboration. In 2020, the World Health Organisation recorded a prevalence of 36.3 million HIV infections and 680,000 deaths.[1] Although earlier in 2018, approximately 26 million people were living with HIV in the sub-Saharan African region and 1.1 million newly infected cases, accounting for about two-thirds of all new HIV infections across the globe.[2] By 2020, almost 1.7 million people living with HIV (PLHIV) and 49,000 deaths were seen among adults and children in Nigeria.[3] However, HIV is not only infectious but a present-day social problem that negatively affects interaction with other individuals, family members, colleagues, and society at large.[4] Those infected with the virus feel detested, isolated, discriminated against, and may even lose societal respect and status. While some others have experienced a change in the level of intimacy with their partners, marital problems, divorce, poor family support, and deprivation of basic amenities (food, shelter, and clothing). Moreover, the social effect of being HIV infected has also caused many to lose their source of livelihood thereby affecting their economic power.[5] These social problems are a result of stigmatization and discrimination from family, friends, colleagues, and healthcare workers causing psychological consequences like depression as observed two to three times more in infected than non-infected patients.[6,7]

According to the World Health Organization, depression is described as a mood disorder that can cause persistent loss of interest or pleasure, decreased energy, feelings of guilt or low self-worth, disturbed sleep or appetite, and poor concentration.[8] An estimated 280 million people globally are depressed causing great suffering and affecting their day-to-day functionality at home, school, and work.[9] In sub-Saharan Africa, approximately 3.63 million people living with HIV/AIDS present with symptoms of depression. [6,10] In Nigeria, there are significant variations in the prevalence of depression among people living with HIV/AIDS ranging between 21.3% to 54.2%[11–14] but currently estimated at 3.1%.[15] The impact of this mental health disorder among people living with HIV/AIDS includes; poor adherence to antiretroviral medication, irrational behaviours, emotional imbalance, substance and alcohol abuse, and suicidal tendencies causing viral resistance to the antiretroviral medications, earlier advancement to AIDS, and higher death rates. [16–18] The differing prevalence rates may occur as a result of some influencing factors like; research methodology designs, sociodemographic, geographical factors (rural-urban differences, hospital and community-based observations), and socioeconomic characteristics of respondents.

The process of screening for depression and providing timely feedback has been reported to improve the quality of service provided by healthcare workers by implementing prompt interventions as needed and improving patient clinical outcomes.[19,20] These results have been achieved by implementing several interventions that have shown notable reduction in the incidence and prevalence of HIV/AIDS and its consequences. These interventions cut across various programs acting as enablers to ensure the success of the stated objectives and targets which are; gender and human rights, health systems and community systems strengthening and service integration, coordination and institutional arrangement, policy, advocacy, and resource mobilization, monitoring and evaluation and leadership, ownership, and sustainability. In Nigeria, the 2019-2021 National Strategic Plan with five thematic areas was adopted to prevent and control HIV/AIDS among the general and key populations which are in line with the UNAIDS investment framework; HIV testing services; elimination of mother-to-child transmission of HIV (eMTCT); HIV treatment; and, care, support, and adherence.[21]

The objectives of this study are to provide location-specific information about the prevalence and severity of depression among HIV-positive patients receiving care at the Rivers State University Teaching Hospital and identify determinants of depression among the patients.

METHODS

Study settings

This study was conducted at the antiretroviral clinic of the Rivers State University Teaching Hospital (RSUTH) in Rivers State. The Rivers State Government runs the facility and has a 375-bed space equipped with suitable infrastructure, equipment, and qualified personnel to provide quality healthcare services that befit a tertiary institution. An average of 660 patients living with HIV/AIDS are seen every month at this clinic for refills of antiretroviral medications, medical consultations, follow-up, and social care.

Study design

This cross-sectional hospital-based study was conducted between October to December 2023.

Study participants

The study population consisted of HIV-positive patients receiving care and treatment at the Rivers State University Teaching Hospital. All consenting patients aged 18 years and above with confirmed positive test results for HIV and already receiving antiretroviral treatment for at least six months at the clinic were eligible for inclusion in the study. However, patients who were too ill to participate or had been diagnosed with mental illness before knowing their HIV status were excluded from the study.

Sample size calculation

The formula for calculating sample size for a cross-sectional study was employed, [22] using a 32.6% prevalence of depression from a previous study.[11] A minimum sample size of 338 participants was obtained with a 10% non-response rate[23] giving the total sample size of 376. However, the data of 404 participants was collected.

Data collection and statistical analysis plan

An interviewer-administered questionnaire with the following sections was used to collect data: Socio-demographic characteristics; age, sex, marital status, level of education, and employment status; clinical information of participants such as family history of depression, age at diagnosis of HIV/AIDS, duration of taking highly active anti-retroviral medication (HAART), most recent CD4 count level, recent viral load, ART regimen, membership in a social support group, and presence of comorbidity; and assessment of depression using the validated PHQ-9 questionnaire consisting of a total of nine questions with 4 probable options. The grades for the scores obtained are; a score of 0-4 (indicating minimal or no depression), 5-9 (which indicates mild depression), 10-14 (indicates moderate depression), 15-19 (indicates moderately severe depression), while 20-27 (indicates severe depression).

RESULTS

The mean age of the 404 participants was 41.8 ± 10.1 years, with a minimum and maximum ages of 13 and 73 respectively. Table 1 shows the socio-demographic characteristics of the participants with more than thirty per cent of the participants aged 41-50 years 151 (37.4%), 115 (28.5%) aged 31-40 years, while only 3 (0.7%) were below the age of 20 years. The proportion of females 267 (66.1%) was more than the males 137 (33.9%). The majority of the participants were Christians 398 (98.5%), while a few practiced Islam 6 (1.5%). More than fifty percent of the participants were married 248 (61.4%), 113 (28%) were single, 13 (3.2%) cohabited, and 5 (1.2%) were divorced. Many of the participants 208(51.5%) had attained secondary education and 128 (31.7%) of them had tertiary education as their highest attained educational level, 64 (15.8%) had achieved only primary education and 4 (1%) had no education. More than half of the participants 209 (51.7%) were engaged in a non-professional occupation or the other, 84 (20.8%) had a formal occupation, 102 (25.2%) were unemployed, and 9 (2.2%) were pensioners.

Table 1: Socio-demographic characteristics of the participants

Variables	Frequency	Percent (%)
Age category		
≤20 years	3	0.7
21-30 years	61	15.1
31-40 years	115	28.5
41-50 years	151	37.4
51-60 years	53	13.1
≥61 years	21	5.2
Sex		
Female	267	66.1
Male	137	33.9
Religion		
Christian	398	98.5
Islam	6	1.5
Marital status		
Cohabiting	13	3.2
Divorced	5	1.2
Married	248	61.4
Not married	113	28
Widowed	25	6.2
Highest Level of Education		
None	4	1
Primary	64	15.8
Secondary	208	51.5
Tertiary	128	31.7
Employment status		
Employed informal/non-professional	209	51.7
Employed formal-professional	84	20.8
Not employed	102	25.2
Pensioner	9	2.2

Table 2 shows the clinical history of participants with a majority of them 374 (92.6%) receiving Tenofovir/Lamivudine/Dolutegravir regimen, while the remaining proportions were: 14 (3.5%) each were on Abacavir/Lamivudine + (Efavirenz or Dolutegravir) and other antiretroviral medications, and only 1 (0.2%) each was on Tenofovir/Lamivudine/Efavirenz and Zidovudine/Lamivudine/Nevirapine. Most of the participants 326 (80.7%) had been on the HAART for about 0-9 years, 73 (18.1%) were on the medication for 10 to 19 years, 2 (0.5%) participants each had taken antiretroviral therapy for 20-29 years and 30-39 years, while only 1 (0.2%) had taken the medication for between 40-49 years. Likewise, more than ninety percent 399 (98.8%) were not members of any social support group, but only 5 (1.2%) of the participants belonged to a social support group. Also, 363 (89.9%) had no known co-morbidity, whereas 41 (10.1%) participants had a comorbidity. Only a small proportion of the participants 62 (15.3%) had a history of depression, and following the assessment of depression, more than fifty per cent of these participants were depressed 258 (63.9%). However,

among the depressed participants, the majority of them 252 (62.4%) had mild depression, while only 6 (1.5%) were moderately depressed and no participant had severe depression

Table 2: Clinical history of participants

Variables	Frequency	Percent (%)
Current ART regimen		
Abacavir/Lamivudine+ (Efavirenz or Dolutegravir)	14	3.5
Tenofovir/Lamivudine/Dolutegravir	374	92.6
Tenofovir/Lamivudine/Efavirenz	1	0.2
Zidovudine/Lamivudine/Nevirapine	1	0.2
Other	14	3.5
Duration of years on HAART		
0-9 years	326	80.7
10-19 years	73	18.1
20-29 years	2	0.5
30-39 years	2	0.5
40-49 years	1	0.2
Membership in a social support group		
No	399	98.8
Yes	5	1.2
Presence of a comorbidity		
No	363	89.9
Yes	41	10.1
Depression history		
Family history of depression		
No	342	84.7
Yes	62	15.3
Depression status		
Not depressed	146	36.1
Depressed	258	63.9
Depression severity		
Minimal depression	146	36.1
Mild depression	252	62.4
Moderate depression	6	1.5

Tables 3 and 4 show the socio-demographic variables and clinical history associated with depression. Only a family history of depression was significantly associated ($p<0.015$) with the occurrence of depression among the participants.

Table 3: Socio-demographic characteristics associated with depression

	Depression Status			
	Not Depressed	Depressed	Chi Sq	P-Value
Age category				
=<20 years	1 (0.7)	2 (0.8)		
21-30 years	23 (15.8)	38 (14.7)		
31-40 years	45 (30.8)	70 (27.1)	2.058**	0.862
41-50 years	55 (37.7)	96 (37.2)		
51-60 years	15 (10.3)	38 (14.7)		
=>61 years	7 (4.8)	14 (5.4)		
Sex				
Female	93 (63.7)	174 (67.4)	0.583	0.512
Male	53 (36.3)	84 (32.6)		
Religion				
Christian	142 (97.3)	256 (99.2)	2.335**	0.195
Islam	4 (2.7)	2 (0.8)		
Marital status				
Cohabiting	3 (2.1)	10 (3.9)		
Divorced	1 (0.7)	4 (1.6)		
Married	94 (64.4)	154 (59.7)	3.207**	0.545
Not married	37 (25.3)	76 (29.5)		
Widowed	11 (7.5)	14 (5.4)		
Highest level of education				
None	1 (0.7)	3 (1.2)		
Primary	26 (17.8)	38 (14.7)	0.951**	0.799
Secondary	75 (51.4)	133 (51.6)		
Tertiary	44 (30.1)	84 (32.6)		
Employment status				
Employed Informal/Non-Professional	80 (54.8)	129 (50.0)		
Employed Formal-Professional	23 (15.8)	61 (23.6)	3.669	0.308
Not Employed	39 (26.7)	63 (24.4)		
Pensioner	4 (2.7)	5 (1.9)		

***Likelihood ratio value*

Table 4: Clinical history associated with depression

	Depression status			
	Not depressed	Depressed	Chi sq	P-value
Current ART regimen				
Abacavir/Lamivudine+(Efavirenz or Dolutegravir)	7 (4.8)	7 (2.7)		
Other	6 (4.1)	8 (3.1)	3.235**	0.519
Tenofovir/Lamivudine/Dolutegravir	133 (91.1)	241 (93.4)		
Tenofovir/Lamivudine/Efavirenz	0 (0.00)	1 (0.40)		
Zidovudine/Lamivudine/Nevirapine	0 (0.00)	1 (0.40)		
Duration of years on HAART				
0-9 years	124 (84.9)	202 (78.3)		
10-19 years	22 (15.1)	51 (19.8)		
20-29 years	0 (0.0)	2 (0.8)	6.161**	0.284
30-39 years	0 (0.0)	2 (0.8)		
40-49 years	0 (0.0)	1 (0.4)		
Presence of a comorbidity				
No	130 (89.0)	233 (90.3)	0.165	0.733
Yes	16 (11.0)	25 (9.7)		
Membership in a social support group				
No	143 (97.9)	256 (99.2)	1.186**	0.357
Yes	3 (2.1)	2 (0.8)		
Family history of depression				
No	115 (78.8)	227 (88.0)	6.097	0.015*
Yes	31 (21.2)	31 (12.0)		

**Significant, **Likelihood ratio value*

DISCUSSION

This study provides findings about depression among HIV/AIDS patients at the Rivers State University Teaching Hospital. We found that 258 (63.9%) of study participants had depression. This agrees with similar high prevalence values of depression reported in studies conducted by Elbadawi et al (63.1%),[24] Berger-Greenstein et al (72.9%),[25] Aljohani et al (73%),[26] and Yeneabat et al (76.7%).[27] However, a lower prevalence of depression was observed in studies done by Shittu et al (56.7%),[28] Beyamo et al (50.5%)[29] and Obadeji et al (23.1%).[30] The variations could be attributed to differences in sample size, instruments used to determine depression, and geographical locations. Moreover, responding by a face-to-face interview may likely have prompted the participants to give socially desirable answers. Data from this study in collaboration with findings from other studies highlights the need for early diagnosis and management of depression in this vulnerable population.

Concerning the severity of depression in this study, most participants had mild depression 252 (62.4%) and only a few had moderate depression 6 (1.5%), while no participant had severe depression. The findings are similar to the observations made by Mohamud et al,[31] but contrast with the reports made by Elbadwi et al [24] and Obadeji et al,[30] who had a lower prevalence of mild depression and a higher prevalence of moderate depression. The disparities observed may be due to certain variables associated with the socio-demographic, clinical, family history of depression, the type of antiretroviral regimen, study area and population, instrument used for screening, and the sample size used in the studies.

In this study, a higher prevalence of depression was observed among the middle-aged participants, 41-50 years, though not significant following bivariate analysis. This finding may be attributed to the longer duration of living with HIV/AIDS, the presence of comorbidities that may be age-related, the pill burden, and poor social support. This finding differs from the outcome shown in a study carried out by Seid et al,[7] who reported that the higher prevalence of depression among participants within the younger age group was likely due to their experiences of stigma.

Also, females had a higher prevalence of depression in this study compared to males and though the finding was not significant, similar observations were made by another researcher.[6,24,29,32] However, a contrasting observation was made by Beyamo in Ethiopia.[29]

Regarding family history of depression, this study showed that a significant association was observed between family history of depression and the occurrence of depression among the participants. This justifies reports from previous studies that have observed three risk indicators that are strongly associated with depression including; a positive family history of depression, a previous personal history of episodes of depression, and a recent major life event.[33–35] Though quite several genome-wide association studies have been conducted in the past, the finding in this study indicates the need for further genetic research on depression as this can improve the early detection and management of depression among people living with HIV/AIDS.

The major strength of this study is the privilege of screening for and assessing the prevalence and severity of depression among PLHWA who receive care in our tertiary facility to improve treatment, care and support for the patients. However, a key limitation of this study is that the results cannot be generalised since it was a single-centre hospital-based study. Additionally, different tools with differing psychometric scales have been used to screen for depression, which can cause variations in the results obtained, thereby limiting the generalizability of the findings from this study. Lastly, due to the cross-sectional design used in this research, the links between a family history of depression and the occurrence of depression among participants in our study do not imply a causal association.

CONCLUSION

This study observed a high prevalence of depression among the participants with a prevailing mild depression. Also, a family history of depression was the main factor associated with depression. The significant association between family history of depression and current depressive symptoms underscores the importance of integrating mental health screening into routine HIV care. This implies that implementing systematic depression screening and providing accessible mental health services-such as measurement-based care or integrated psychotherapy-within HIV treatment programs could enhance patient well-being, improve adherence to antiretroviral therapy, and potentially lead to better overall health outcomes. Furthermore, the observed link between family history and depression suggests a need for further genetic and psychosocial research, which could inform targeted prevention and support strategies for people living with HIV/AIDS.

CONFLICT OF INTEREST

None declared

ACKNOWLEDGEMENTS

The authors would like to appreciate all the esteemed PLWHA making personal efforts to adhere to their antiretroviral therapy despite the psychosocial barriers they experience in the course of adhering to their treatment plan.

ETHICAL APPROVAL

Ethical approval for this study was sought from the Ethics Committee of the Rivers State University Teaching Hospital and respondents were assured of voluntary participation and withdrawal from the study at any stage without any consequence. Written informed consent was obtained before data collection and respondents were assured of anonymity and confidentiality as no personal identifiers were used during data collection.

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